

### ABSTRACT

There is provided a surface cleaning apparatus and method using plasma to remove a native oxide layer, a chemical oxide layer, and a damaged portion from a silicon substrate surface, and contaminants from a metal surface. By absorbing potential in a grounded grid or baffle between a plasma generator and a substrate, only radicals are passed to the substrate, and HF gas is used as a second processing gas. Thus a native oxide layer, a chemical oxide layer, or a damaged portion formed on the silicon substrate during etching a contact hole is removed and the environment of a chamber is maintained constant by introducing a conditioning gas after each wafer process. Therefore, process uniformity is improved.